

STRONG CHILDREN'S RESEARCH CENTER

Summer 2021 Research Scholar

Name: Naomi Sharlyn Ganpo-Nkwenkwa

School: Lafayette College

Mentors: Nicole A. Wilson, Ph.D, M.D. and Derek Wakeman, M.D.

ABSTRACT

Title: *Long-term Functional, Psychological, Emotional, and Social Outcomes in Pediatric Victims of Violence*

Background: Previous trauma outcomes studies have focused on the endpoints of mortality, cost, and hospital length of stay. However, the benefits of dedicated trauma systems for patients go above the endpoint of improved mortality. It becomes increasingly important to evaluate the long-term health outcomes following injury as these factors may continue to affect patients daily. Vella et al. originally evaluated long-term outcomes after gunshot wound (GSW) in an adult population. Despite the growth in studies addressing such topics, there are no studies that we are aware of evaluating pediatric patients after traumatic injury due to violence as they move into adulthood.

Objective: We aimed to evaluate the long-term functional, psychological, emotional, and social outcomes after surviving pediatric violent injury. We hypothesized that many patients would continue to suffer in these respects as a result of their violent injury.

Methods: After institutional review board approval, we conducted a retrospective study of current adult patients (age ≥ 18 years) discharged from our trauma center after sustaining a violent traumatic injury (GSW, assault or stab) as a pediatric patient (age < 18 years at the time of initial injury) from January 1, 2011 to December 31, 2020. Once contacted, participants provided verbal informed consent for the study. Demographic and injury-related variables were assessed from our prospectively maintained institutional trauma registry. Patients were evaluated with eight unique Patient-Reported Outcomes Measurement Information System (PROMIS) instruments. Patients also completed the Primary Care Post-Traumatic Stress Disorder screen (PC-PTSD-5). Demographic and clinical variables were compared between study participants and those who declined participation or could not be contacted by telephone. Chi-square (χ^2) and Kruskal-Wallis tests were used to compare groups. For each PROMIS instrument, participants' mean t scores were compared with calibrated reference populations using 1-sample t tests.

Results: Overall, a total of 273 patients met initial inclusion criteria. We attempted to survey 216 subjects who were now at least 18 years old. Telephone contact was made with 69 patients. Twenty-four patients agreed to participate in the study. Of those surveyed, the mechanism of violent injury included fifteen patients (62.5%) who sustained stabbing, eight (33.3%) who sustained GSWs, and another who was assaulted. The participants were primarily teenagers (median age, 16 years) at the time of injury, black (20, [83.3%]), and male (19 [79.2%]). Mean time from injury for survey participants was 6.7 years. There were no statistical differences in measured variables between the subjects that participated and those who declined participation or could not be contacted by telephone. Participants had mean [SD] scores of 55 [9] ($p=0.01$) for Global Physical Health, 53 [9] ($p=0.20$) for Global Mental Health, 53 [7] ($p=0.07$) for Physical Function PROMIS metrics (50 is the reference mean), with 29%, 38%, and 46% of subjects scoring below the reference mean in these respective domains. Eleven participants (45.8%) had a positive screen for probable PTSD. In addition, 62.5% of the patients that participated requested a list of resources, from which 16.7% of them required a follow-up appointment with the adult trauma clinic due to their injuries. Nine individuals were incarcerated, and 5 patients were dead due to a second traumatic incident at the time of the survey.

Conclusion: Our hypothesis was confirmed in that many pediatric survivors of violent injury continue to experience negative physical and mental functional outcomes. Many participants reported worse function in the PROMIS domains of Global Physical Health, Global Mental Health and Physical Function compared with the general population. Our results suggest that the lasting effects of violent injury reach far beyond mortality and economic burden. Indeed, these additional burdens were still present years after their injury. Nearly half of subjects still report symptoms of PTSD. Based on our initial study, survivors of pediatric violent injuries often have lasting ailments that require medical and psychological support. Further resources are needed to better understand the long-term effects of violent injury and care for these patients' complex needs to allow them to achieve their full potential as people in the community.